# August Monthly Educational Module

# "Frequently Asked Questions"

Day 1

We are back with our 8th Monthly Educational Module, and this month we are covering all of those Frequently Asked Questions you have about hydrology and the River Forecast Center! First, we are starting off with one of the most frequent questions we get. Check out the graphic below to find out what it is and its answer!

# Day 2

Are you ready for another Frequently Asked Question with the LMRFC's Monthly Module?!? Well, you are in luck because we've got another good one for you! We are covering all those frequently asked questions about flood categories. Check out the graphic below to learn more!

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## Frequently Asked Questions

### What are "action stage," "flood stage," and "record stage?" Are the river stages in the forecast seasonally related?

- Action stage is the stage at which some sort of action is taken for the river point. This is different for all points depending on the community's needs. It may be flooding of secondary roads or just a "heads up" that the river is rising.
- Flood stage is the stage at which structures begin to get affected. This may be a road or building. Flood stage is broken into 3 categories: minor, moderate, and major. Record stage is the highest stage that the river point has gotten to since records were established.
- None of our action or flood stages in the LMRFC area are seasonal, but there are some river points in the U.S. that are seasonal. For example, you may have a lower flood stage in the summer due to increased outdoor activities by the river.


| Flood Categories (in feet) | |
|---|---|
| Major Flood Stage: | 12 |
| Moderate Flood Stage: | 11 |
| Flood Stage: | 8 |
| Action Stage: | 7.9 |

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# Day 3

Last month, we talked about where you can find all of the Mississippi River forecasts and data in the LMRFC's area; however, we are often asked where to find Upper Mississippi River forecasts and data. To find out the answer to this FAQ, check out the graphic below!

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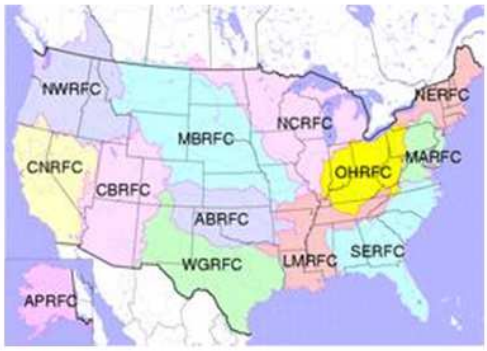
## Frequently Asked Questions

### Where can I find river stages and forecasts for the Upper Mississippi River and the Ohio River?

- The Upper Mississippi River forecasts come from the North Central River Forecast Center (NCRFC) and can be found here: http://www.crh.noaa.gov/ncrfc/
- The Lower Mississippi River is also impacted by the Ohio River which is forecast by the Ohio River Forecast Center (OHRFC). You can access OHRFC's forecasts here: http://www.weather.gov/ohrfc/.
- You can also access river data from the NWS's River Watch site: http://www.riverwatch.noaa.gov/. This site has forecasts for the Mississippi, Ohio, Missouri, and Illinois Rivers.

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# Day 4

Let’s continue our FAQ Monthly Module with this interesting FAQ… “We hear about all the flooding along the northern Mississippi River. Why is it we don't see flooding impacts expected on the Lower Mississippi and Atchafalaya Rivers?” Check out the graphic below to find out the answer!

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## Frequently Asked Questions

### We hear about all the flooding along the northern Mississippi River. Why is it we don't see flooding impacts expected on the Lower Mississippi and Atchafalaya Rivers?

There are several reasons why we may not get a major rise on the Lower Mississippi and Atchafalaya Rivers from flooding along the northern Mississippi River. One reason is that water attenuates as it moves downstream, which allows for the flood wave to dampen as it travels further and further. In addition, reservoirs along the Mississippi River help to protect against major floods downstream.

It also depends on where and how much precipitation falls in the Upper Mississippi River and the Ohio River Valleys. If there is a significant amount of precipitation in both river basins, you will likely see flooding downstream; however, if you only get significant precipitation and flooding on the Upper Mississippi River or the Ohio River, you may not see flooding downstream. This is because the Lower Mississippi River has a larger channel capacity.


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# Day 5

We've got another Frequently Asked Question for you and it's a good one! Last month, we talked about QPF; but we are often asked, "What is QPF?" Well, you are in luck! Check out the graphic below to find out!

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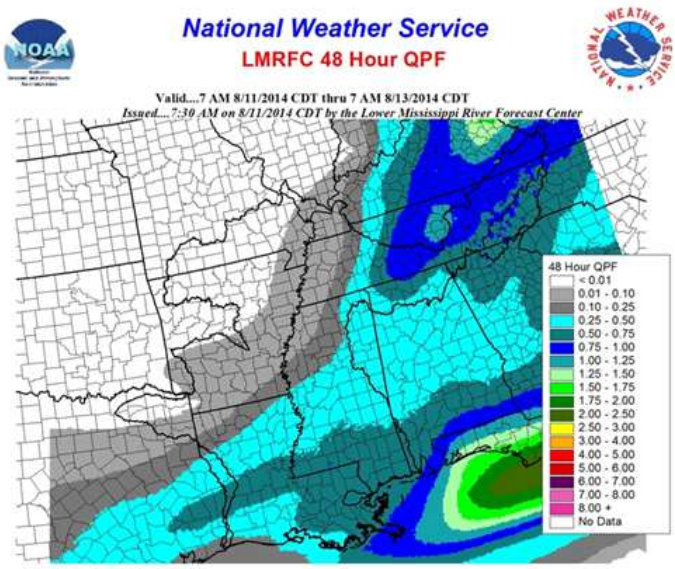
## Frequently Asked Questions

### What does QPF stand for?

- QPF stands for Quantitative Precipitation Forecast which ultimately means an areal forecast of how much rainfall is expected over a period of time.
- The LMRFC QPF is broken into 6-hour time steps over a 10-day period. The QPF is issued 12Z (6AM/7AM), 18Z (12PM/1PM), 00Z (6PM/7PM), and during 24-hour operations at 06Z (12AM/1AM).

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# Day 6

Next up, we are continuing our module with a FAQ on river stages! Check out the graphic below to learn more.

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## Frequently Asked Questions

### How are river stages calculated? Specifically, what is the point of reference used to determine a height?

River stage readings are measured in feet and are determined by the agency responsible for installing and maintaining the river gage. This is determined after coordinating with local agencies before the gage is installed. A river stage can either be manually read with a staff gage (pictured bottom right) or a wire weight gage (pictured top right). Or, the river gage can be automatic (pictured top left).

River stages are calculated from an arbitrary "gage zero" point, the point of reference used. The reason that we get negative levels is because these "gage zero" points were established decades ago and over time the river has shifted and scoured. The reason that this is not adjusted is because the people that live around the river are familiar with the flood stage and how the current stage compares to it. It takes a vast amount of planning and education in order to change a "gage zero" which would also change the flood stage.

Also, all "gage zero" points are independent of each other. For example, you may see a stage of -6.7 feet upstream of a 13.5 feet stage even though the river is higher at the upstream point when compared to mean sea level.


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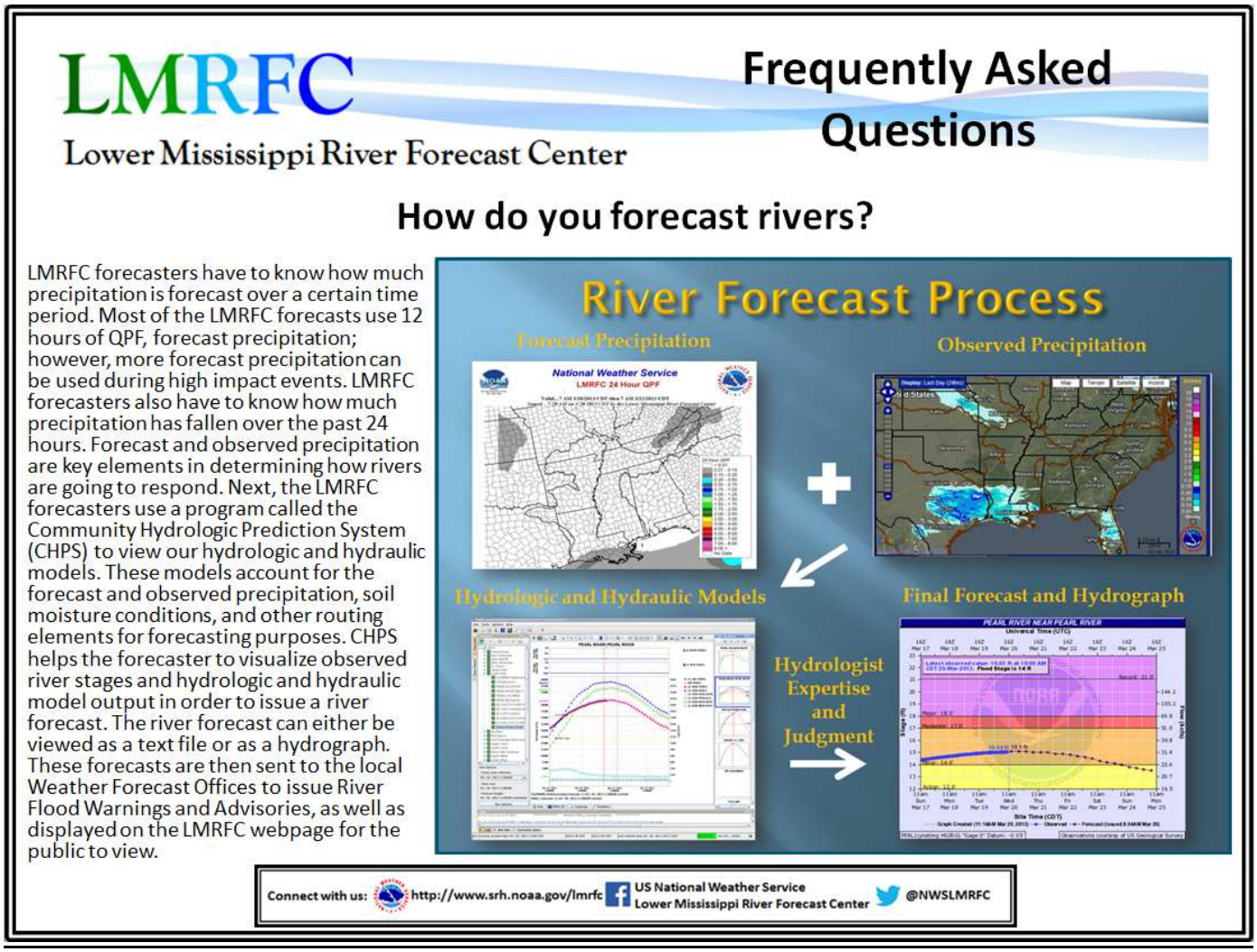
# Day 7

Have you ever wondered how the Lower Mississippi River Forecast Center forecasts its rivers?! If so, you aren't the only one! This is one of the most common and frequently asked questions we get here at the LMRFC. So, we have answered it in the graphic below. Check it out!



# Day 8

Previously, we covered how our forecasters here at the Lower Mississippi River Forecast Center forecast rivers. We mentioned how observed precipitation is one of the key components in forecasting rivers. Now, we are discussing how the LMRFC determines this observed precipitation. Check out the graphic below to learn more!

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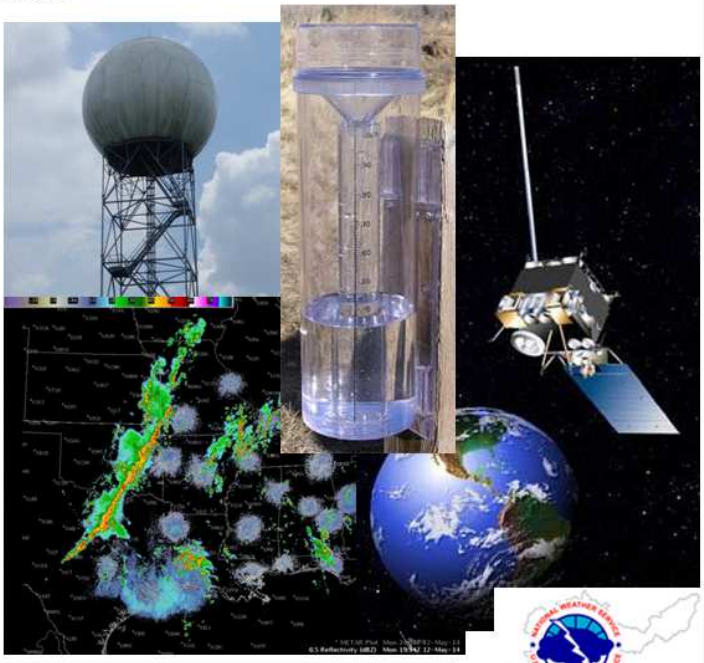
## Frequently Asked Questions

### How do you figure out how much precipitation has fallen over an area?

First, LMRFC forecasters look at radar estimates. However, radar estimates have limitations. Radar estimates can be contaminated by hail and false echoes, also referred to as anomalous propagation or clutter. This includes objects such as birds, planes, and even cars on bridges. Radar estimates can also be affected by beam blockage from mountains and other tall structures. In addition, there is an area near and above the radar, called the cone of silence, where the radar beam cannot scan. Lastly, radars can have mechanical problems.

So, this is why we use other resources to determine how much precipitation has fallen, such as rain gages. It is important to make sure you have rain gages in an area to verify precipitation data from the radar. Just like we need storm spotters for tornado, hail, and wind verification, we need rain gages for precipitation verification, especially in cases of flooding or flash flooding.

Lastly, LMRFC forecasters will use satellite data to verify where precipitation is falling or where it has fallen.



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Day 9

Are you ready for another Frequently Asked Question?! Great, we are too! Next up, we are covering a FAQ from our friends along the Pearl River. Check it out below!

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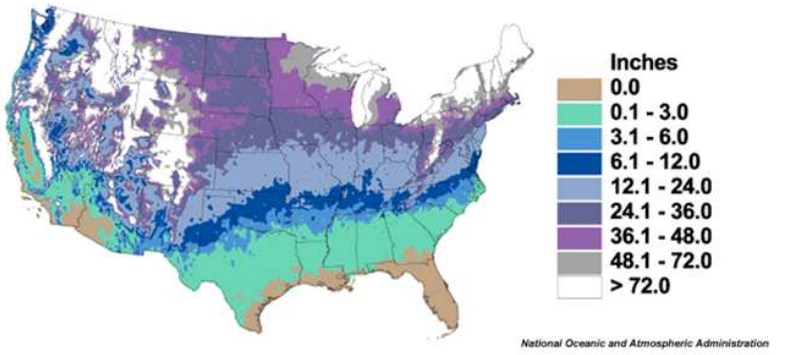
## Frequently Asked Questions

### Is the Pearl River basin impacted by snowmelt along the Mississippi River?

No! Snowpack on the Mississippi River does not affect the Pearl River because these two river basins are not connected. However, the Pearl River basin can have snowmelt in the upper Pearl River basin, but the average total snowfall for the Pearl River basin is not enough to cause significant rises down the Pearl River. You can check the Annual Mean Total Snowfall amounts with the graphic pictured on the right.

**Annual Mean Total Snowfall**

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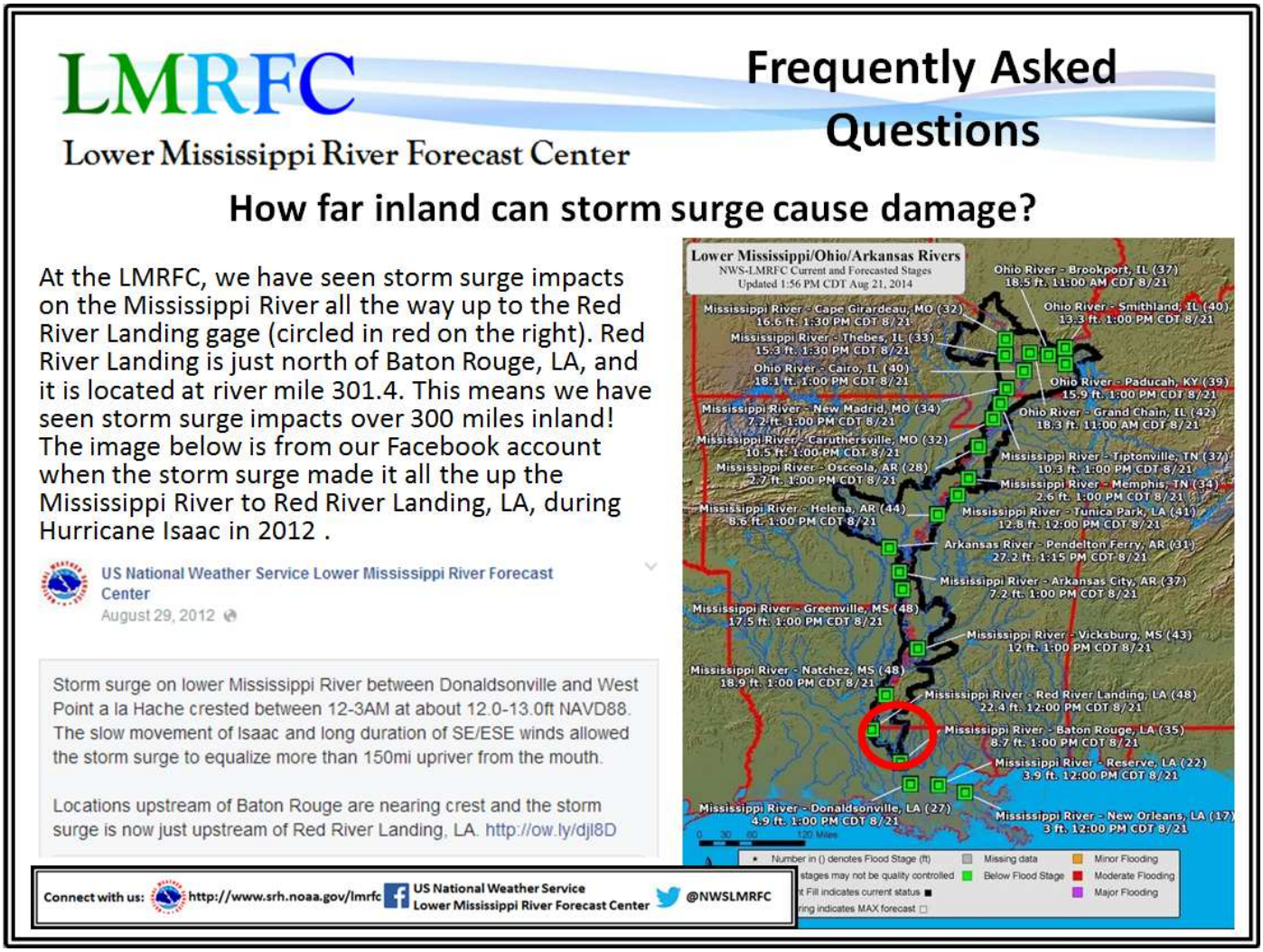
# Day 10

This would normally be our last post, but we have saved ONE extra FAQ for just you! Now, since we are coming into the peak of hurricane season, we thought it was fitting to cover a storm surge FAQ. Check out the graphic below to find out what it is!



# Day 11

As promised, we have saved one more Frequently Asked Question for you, and it's a good one! Have you ever wondered if a river can flow upstream? What about if a river can flow north rather than south? Well, you are in luck because we have some answers for you! Check out the graphic below to see what they are!

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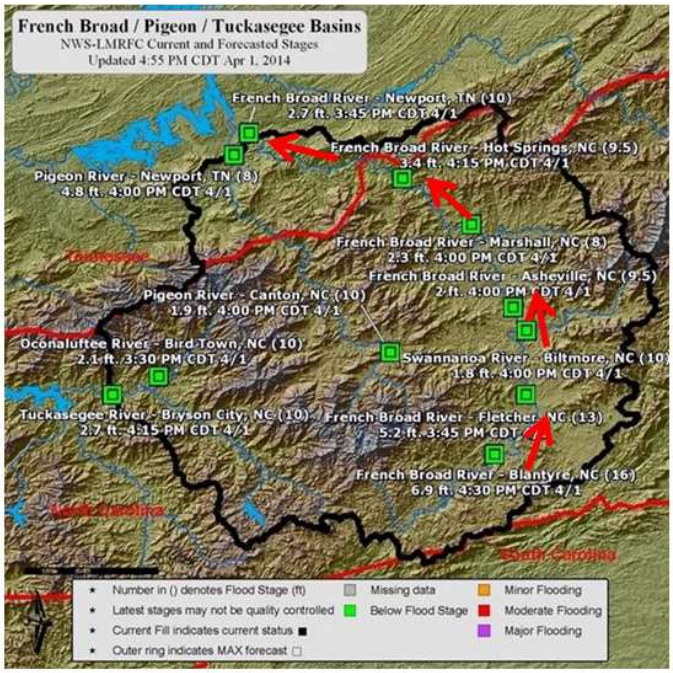
## Frequently Asked Questions

### Can a river flow upstream? Can a river flow north?

Yes and yes! Most often a river flows downstream; however, you can backwater, storm surge, or earthquake effects that can cause a river to flow upstream. And, topography, especially in the mountains, is the main reason why a river can flow north. For example, the French Broad river basin, pictured to the right, flows north due to the topography in the area. You can follow the red arrows to see how this river basin flows.

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We hope you have enjoyed learning all about some of our frequently asked questions, and, hopefully, we answered some of your FAQ's as well!